Plan Summary

Title: Redesignation Request and Associated Maintenance Plan for the Lancaster Nonattainment Area for the 1997 Annual and 2006 24-Hour Fine Particulate Matter Standard

Federal Register Date: Final Rule - 7/16/15 / 80 FR 42050, Proposed Rule – 5/1/2015 80 FR 24874

EPA Effective Date: This final rule is effective on July 16, 2015

State Submittal Date: 04/30/2014

Affected Area(s): Lancaster County, Pennsylvania

Background of the Plan:
The Environmental Protection Agency (EPA) approved the Commonwealth of Pennsylvania's request to redesignate to attainment the Lancaster Nonattainment Area (Lancaster Area or Area) for the 1997 annual and 2006 24-hour fine particulate matter (PM2.5) national ambient air quality standard (NAAQS or standard). EPA has determined that the Lancaster Area attained both the 1997 annual and 2006 24-hour PM2.5 NAAQS. In addition, EPA also approved as a revision to the Pennsylvania State Implementation Plan (SIP) the associated maintenance plan to show maintenance of the 1997 annual and 2006 24-hour PM2.5 NAAQS through 2025 for the Lancaster Area. The maintenance plan includes the 2017 and 2025 PM2.5 and nitrogen oxides (NOX) mobile vehicle emissions budgets (MVEBs) for the Lancaster Area for the 1997 annual and 2006 24-hour PM2.5 NAAQS, which EPA approved for transportation conformity purposes. Furthermore, EPA approved the 2007 base year emissions inventory included in the maintenance plan for the Lancaster Area for both NAAQS.

EPA previously determined that the Lancaster Area attained both the 1997 annual and 2006 24-hour $PM_{2.5}$ NAAQS (see 74 FR 48863 (September 25, 2009) and 77 FR 18922 (March 29, 2012)), and EPA found that the Area continues to attain both NAAQS. EPA has also approved the 2007 comprehensive emissions inventory submitted with Pennsylvania's maintenance plan that includes an inventory of $PM_{2.5}$, SO_2, NOx, VOC, and NH_3 for the Area as a revision to the Pennsylvania SIP for the 1997 annual and 2006 24-hour $PM_{2.5}$ NAAQS in order to meet the requirements of section 172(c)(3) of the CAA.

Summary:
EPA took final actions on the redesignation request and SIP revisions submitted on April 30, 2014 by the Commonwealth of Pennsylvania for the Lancaster Area for the 1997 annual and 2006 24-hfinds that the monitoring data demonstrates that the Area has attained the 1997 annual and 2006 24-hour PM2.5 NAAQS, and continues to attain both NAAQS. Second, EPA approved Pennsylvania's redesignation request for the 1997 annual and 2006 24-hour PM2.5 NAAQS, because EPA has determined that the request meets the redesignation criteria set forth in section 107(d)(3)(E) of the CAA for both NAAQS. Approval of this redesignation request will change the official designation of the Lancaster Area from nonattainment to attainment for the 1997 annual and 2006 24-hour PM2.5 NAAQS. Third, EPA approved the associated maintenance plan for the Lancaster Area as a revision to the Pennsylvania SIP for the 1997

annual and 2006 24-hour PM2.5 NAAQS because it meets the requirements of section 175A of the CAA. The maintenance plan includes the 2017 and 2025 PM2.5 and NOX MVEBs submitted by Pennsylvania for the Lancaster Area for transportation conformity purposes. In addition, EPA approved the 2007 emissions inventory for the Lancaster Area as meeting the requirement of section 172(c)(3) of the CAA for both NAAQS, our PM2.5 NAAQS.

EPA has reviewed the ambient air quality $PM_{2.5}$ monitoring data in the Lancaster Area, consistent with the requirements contained in 40 CFR part 50, and recorded in EPA's Air Quality System (AQS), including quality-assured, quality-controlled, and state-certified data for the monitoring periods 2007-2009, 2008-2010, 2009-2011, 2010-2012, and 2011-2013. This data, provided in Tables 1 and 2, shows that the Area continues to attain the 1997 annual and 2006 24-hour $PM_{2.5}$ NAAQS.

Table 1. Lancaster Area's Annual Design Values for the 1997 annual $PM_{2.5}$ Standard for the 2007-2013 Monitoring Periods, in $\mu g/m^3$

Monitor ID#	2007-2009	2008-2010	2009-2011	2010-2012	2011-2013
42-071-0007	13.8	12.6	12.0	12.1	12.0

Table 2. Lancaster Area's 24-Hour Design Values for the 2006 24-hour $PM_{2.5}$ Standard for the 2007 – 2013 Monitoring Periods, in $\mu g/m^3$

Monitor ID#	2007-2009	2008-2010	2009-2011	2010-2012	2011-2013
42-071-0007	35	33	31	31	31

EPA's review of the monitoring data from 2007 through 2013 supports EPA's previous determinations that the Area has attained the 1997 annual and 2006 24-hour $PM_{2.5}$ NAAQS, and that the Area continues to attain both standards. In addition, as discussed subsequently, with respect to the maintenance plan, Pennsylvania has committed to continue monitoring ambient $PM_{2.5}$ concentrations in accordance with 40 CFR part 58. Thus, based upon analysis of currently available data, EPA is proposing to determine that the Lancaster Area continues to attain the 1997 annual and 2006 24-hour $PM_{2.5}$ NAAQS.

Emissions Budgets/Emissions inventory:

To satisfy the 172(c)(3) requirement for the 1997 annual and the 2006 24-hour $PM_{2.5}$ NAAQS, Pennsylvania's April 30, 2014 redesignation request and maintenance plan for the 1997 annual and the 2006 24-hour $PM_{2.5}$ NAAQS contains a 2007 comprehensive emissions inventory. The 2007 emissions inventory was the most current accurate and comprehensive emissions inventory of $PM_{2.5}$, NO_X, SO_2, VOC, and NH_3 for the Area when the Area attained the 1997 annual and 2006 24-hour $PM_{2.5}$ NAAQS. Thus, as part of this rulemaking action, EPA has approved Pennsylvania's 2007 comprehensive emissions inventory for the 1997 annual and the 2006 24-hour $PM_{2.5}$ NAAQS as satisfying the requirement of section 172(c)(3) of the CAA for both standards. Final approval of the 2007 base year emissions inventory will satisfy the emissions inventory requirement under section 172(c)(3) of the CAA for the 1997 annual and the 2006 24-hour $PM_{2.5}$ NAAQS. The 2007 comprehensive emissions inventory addresses the general source

categories of point sources, area sources, on-road mobile sources, and non-road mobile sources. A summary of the 2007 comprehensive emissions inventory is shown in Table 3. For more information on EPA's analysis of the 2007 emissions inventory, see the TSD prepared by the EPA Region III Office of Air Monitoring and Analysis dated February 5, 2015, "Technical Support Document (TSD) for the Redesignation Request and Maintenance Plan for the Lancaster, PA 1997 and 2006 $PM_{2.5}$ Nonattainment Area" (Inventory TSD), available in the docket for this rulemaking action at www.regulations.gov. See Docket ID No. EPA-R03-OAR-2015-0050.

Table 3. 2007 Emissions for the Lancaster Area, in tons per year (tpy)

Sector	$PM_{2.5}$	SO_2	NOx	VOC	NH_3
Point	254	102	1,147	2,691	8
Area	2,691	3,030	1,827	6,675	15,551
Onroad	480	102	13,895	5,529	207
Nonroad	290	148	3,173	4,627	3
Total	3,715	3,382	20,041	19,522	15,769

A summary of the emissions reductions of $PM_{2.5}$, NOx, SO_2, VOC, and NH_3 from 2002 to 2007 in the Lancaster Area, submitted by PADEP, is provided in Table 4. For more information on EPA's analysis of the 2007 emissions inventories, see EPA's Inventory TSD, dated February 5, 2015, available in the docket for this rulemaking action at www.regulations.gov.

Table 4. Emission Reductions from 2002 to 2007 in the Lancaster Area (tpy)

	Sector	2002	2007	Net Reduction 2002-2007	Percent Reduction 2002-2007
$PM_{2.5}$	Point	380	254	127	33%
	Area	3,612	2,691	922	26%
	On-road	541	480	60	11%
	Non-road	322	290	-2	-1%
	Total	4,856	3,715	1,140	23%
NO_X	Point	1,368	1,147	221	16%
	Area	1,739	1,827	-87	-5%
	On-road	17,466	13,895	3,572	20%
	Non-road	4,001	3,173	828	21%
	Total	24,575	20,041	4,534	18%
SO_2	Point	498	102	395	79%
	Area	2,735	3,030	-295	-11%
	On-road	362	102	260	72%
	Non-road	295	148	147	50%

	Total	3,890	3,382	508	13%
VOC	Point	3,188	2,691	497	16%
	Area	9,887	6,675	3,212	32%
	On-road	6,481	5,529	953	15%
	Non-road	5,009	4,627	382	8%
	Total	24,566	19,522	5,044	21%
NH_3	Point	12	8	4	33%
	Area	15,994	15,551	444	3%
	On-road	222	207	15	7%
	Non-road	3	3	0	0%
	Total	16,231	15,769	462	3%

The reduction in emissions and the corresponding improvement in air quality from 2002 to 2007 for the 1997 annual and 2006 24-hour $PM_{2.5}$ NAAQS, respectively, in the Lancaster Area can be attributed to a number of regulatory control measures that have been implemented in the Area and contributing areas in recent years.
A summary of the projected reductions from these measures from 2007 to 2025 is shown in Table 5. Table 5 incorporates the expected emissions from potential emissions increases from Emission Reduction Credits (ERCs), which are also included in Tables 6a – 6e.

Table 5. Emission Reductions (Tons) from 2007 to 2025 due to Control Measures

	$PM_{2.5}$	NOx	SO_2	VOC	NH_3
Point	-18	-238	-18	-355	-3
Area	81	122	1,264	249	-2,821
On-Road	295	9,447	63	3,661	63
Non-Road	158	1,862	142	2,388	-1
TOTALS	516	11,194	1,451	5,942	-2,762

Where the emissions inventory method of showing maintenance is used, its purpose is to show that emissions during the maintenance period will not increase over the attainment year inventory.

Tables 6a through 6e provide a summary of the inventories in tpy for the 2007 attainment year, as compared to projected inventories for the 2017 interim year and the 2025 maintenance plan end year for the Area.

Table 6a. Comparison of 2007, 2017, and 2025 Emissions of $PM_{2.5}$ for the Lancaster Area

$PM_{2.5}$							
Sector	2007	2017	2025	2007-2017		2007-2025	
				Reduction	Percent Reduction	Reduction	Percent Reduction
Point	254	267	272	-13	-5%	-18	-7%

Area	2,691	2,649	2,610	42	2%	81	3%
On-Road	480	249	185	231	48%	295	61%
Non-Road	290	182	132	108	37%	158	54%
ERC		0	0				
Total	3,715	3,348	3,200	368	10%	516	14%

Table 6b. Comparison of 2007, 2017, and 2025 Emissions of NOx for the Lancaster Area

NOx							
Sector	2007	2017	2025	2007-2017		2007-2025	
				Reduction	Percent Reduction	Reduction	Percent Reduction
Point	1,147	1,314	1,383	-167	-15%	-236	-21%
Area	1,827	1,702	1,704	125	7%	123	7%
On-Road	13,895	6,916	4,447	6979	50%	9448	68%
Non-Road	3,173	1,775	1,310	1398	44%	1863	59%
ERC		2	2	-2		-2	
Total	20,041	11,710	8,847	8333	42%	11,196	56%

Table 6c. Comparison of 2007, 2017, and 2025 Emissions of SO_2 for the Lancaster Area

SO_2							
Sector	2007	2017	2025	2007-2017		2007-2025	
				Reduction	Percent Reduction	Reduction	Percent Reduction
Point	102	115	120	-13	-13%	-18	-18%
Area	3,030	2,449	1,766	581	19%	1264	42%
On-Road	102	37	39	65	64%	63	62%
Non-Road	148	5	5	143	97%	143	97%
ERC		0	0				
Total	3,382	2,605	1,930	776	23%	1452	43%

Table 6d. Comparison of 2007, 2017, and 2025 Emissions of VOC for the Lancaster Area

VOC							
Sector	2007	2017	2025	2007-2017		2007-2025	
				Reduction	Percent Reduction	Reduction	Percent Reduction
Point	2,691	2,808	2,874	-117	-4%	-183	-7%
Area	6,675	6,459	6,426	216	3%	249	4%

On-Road	5,529	2,965	1,868	2564	46%	3661	66%
Non-Road	4,627	2,753	2,240	1874	41%	2387	52%
ERC		172	172				
Total	19,522	15,157	13,580	4537	23%	6114	31%

Table 6e. Comparison of 2007, 2017, and 2025 Emissions of NH_3 for the Lancaster Area

NH_3							
Sector	2007	2017	2025	2007-2017		2007-2025	
				Reduction	Percent Reduction	Reduction	Percent Reduction
Point	8	10	11	-2	-25%	-3	-38%
Area	15,551	17,152	18,372	-1601	-10%	-2821	-18%
On-Road	207	148	144	59	29%	63	30%
Non-Road	3	4	4	-1	-33%	-1	-33%
ERC		0	0				
Total	15,769	17,314	18,531	-1545	-10%	-2762	-18%

As shown in Tables 6a-6b, the projected levels for $PM_{2.5}$, NOx, SO_2, and VOC are under the 2007 attainment levels for each of these pollutants.

Pennsylvania's maintenance plan includes a commitment by PADEP to continue to operate its EPA-approved monitoring network, as necessary to demonstrate ongoing compliance with the NAAQS. Pennsylvania currently operates a $PM_{2.5}$ monitor in the Lancaster Area. In its April 30, 2014 submittal, Pennsylvania stated that it will consult with EPA prior to making any necessary changes to the network and will continue to operate the monitoring network in accordance with the requirements of 40 CFR part 58.

Contingency Measure(s):

The contingency plan provisions are designed to promptly correct any violation of the 1997 annual and/or the 2006 24-hour $PM_{2.5}$ NAAQS that occurs in the Lancaster Area after redesignation. Section 175A of the CAA requires that a maintenance plan include such contingency measures as EPA deems necessary to ensure that a state will promptly correct a violation of the NAAQS that occurs after redesignation. The maintenance plan should identify the events that would "trigger" the adoption and implementation of a contingency measure(s), the contingency measure(s) that would be adopted and implemented, and the schedule indicating the time frame by which the state would adopt and implement the measure(s).

Pennsylvania's maintenance plan describes the procedures for the adoption and implementation of contingency measures to reduce emissions should a violation occur. Pennsylvania's contingency measures include a first level response and a second level response. A first level response is triggered when the annual mean $PM_{2.5}$ concentration exceeds 15.5 $\mu g/m^3$ in a single calendar year within the Area, when the 98^{th} percentile 24-hour $PM_{2.5}$ concentration exceeds 35.0 $\mu g/m^3$, or when the periodic emissions inventory for the Area exceed the attainment year inventory (2007) by more than ten percent. The first level response will consist of a study to

determine if the emissions trends show increasing concentrations of $PM_{2.5}$, and whether this trend is likely to continue. If it is determined through the study that action is necessary to reverse a trend of emissions increases, Pennsylvania will, as expeditiously as possible, implement necessary and appropriate control measures to reverse the trend.

A second level response will be prompted if the two-year average of the annual mean concentration exceeds 15.0 $\mu g/m^3$ or if the 98^{th} percentile 24-hour $PM_{2.5}$ concentration exceeds 35.0 $\mu g/m^3$within the Area. This would trigger an evaluation of the conditions causing the exceedance, whether additional emission control measures should be implemented to prevent a violation of the standard, and analysis of potential measures that could be implemented to prevent a violation. Pennsylvania would then begin its adoption process to implement the measures as expeditiously as practicable. If a violation of the $PM_{2.5}$ NAAQS occurs, PADEP will propose and adopt necessary additional control measures in accordance with the implementation schedule in the maintenance plan.

Pennsylvania's candidate contingency measures include the following: (1) A regulation based on the Ozone Transport Commission (OTC) Model Rule to update requirements for consumer products; (2) a regulation based on the Control Techniques Guidelines (CTG) for industrial cleaning solvents; (3) voluntary diesel projects such as diesel retrofit for public or private local onroad or offroad fleets, idling reduction technology for Class 2 yard locomotives, and idling reduction technologies or strategies for truck stops, warehouses, and other freight-handling facilities; (4) promotion of accelerated turnover of lawn and garden equipment, focusing on commercial equipment; and (5) promotion of alternative fuels for fleets, home heating and agricultural use. Pennsylvania's rulemaking process and schedule for adoption and implementation of any necessary contingency measure is shown in the SIP submittals as being 18 months from PADEP's approval to initiate rulemaking. For all of the reasons discussed in this section, EPA is proposing to approve Pennsylvania's 1997 annual and 2006 24-hour $PM_{2.5}$ maintenance plan for the Lancaster Area as meeting the requirements of section 175A of the CAA.

The MVEBs are presented in Table 8.

Table 8. MVEBs for the Lancaster Area for the 1997 $PM_{2.5}$ and 2006 24-hour NAAQS, in tpy

Year	$PM_{2.5}$	NOx
2017	249	6,916
2025	185	4,447

EPA's substantive criteria for determining adequacy of MVEBs are set out in 40 CFR 93.118(e)(4). Additionally, to approve the MVEBs, EPA must complete a thorough review of the SIP, in this case the $PM_{2.5}$ maintenance plan, and conclude that with the projected level of motor vehicle and all other emissions, the SIPs will achieve its overall purpose, in this case providing for maintenance of the 1997 annual and the 2006 24-hour

$PM_{2.5}$ NAAQS. EPA's process for determining adequacy of a MVEB consists of three basic steps: (1) Providing public notification of a SIP submission; (2) providing the

public the opportunity to comment on the MVEB during a public comment period; and (3) EPA taking action on the MVEB.

In this rulemaking action, EPA also initiated the process for determining whether or not the MVEBs are adequate for transportation conformity purposes. EPA has reviewed the MVEBs and finds that the submitted MVEBs are consistent with the maintenance plan and meet the criteria for adequacy and approval in 40 CFR part 93, subpart A. EPA approved the 2017 and 2025 $PM_{2.5}$ and NOx MVEBs for Lancaster County for transportation conformity purposes.

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